

Collegiate Student-Athletes' Satisfaction With Athletic Trainers

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Context: In today's sport settings, the athletic trainer is often the first member or the health care team with whom the athlete interacts. Delivery of patient care can be improved by increasing patient/athlete satisfaction.

Objective: To evaluate the satisfaction collegiate student-athletes had with their athletic trainer(s) and the athletic training services provided at their institutions.

Design: A survey format was solicited to 40 randomly selected National Collegiate Athletic Association Division I and II athletic training programs in 4 regions across the United States.

Setting: Collegiate athletic training environment.

Patients or Other Participants: A total of 325 student-athletes from 20 of the programs solicited agreed to participate.

Main Outcome Measure(s): The questionnaire was a variation on a previously used instrument developed for assessing

athletes' perceptions of care. Validity and reliability analyses supported use of the instrument. A linear regression model was calculated to determine predictors of satisfaction score.

Results: Significant differences in satisfaction scores were observed between athletes in high- and low-profile sports and between male and female athletes. When sex and sport profile were combined, differences in scores were noted between female athletes in high-profile sports and males in low-profile sports. Both sex and sport profile were predictors of satisfaction among the student-athletes who participated in the study.

Conclusions: Female athletes and athletes in high-profile sports demonstrated greater satisfaction with their athletic trainer(s). Competitive level did not have a significant influence on satisfaction.

Key Words: patient satisfaction, quality of care, attitude, sport psychology

In most sport settings today at the professional, collegiate, or interscholastic level, the athletic trainer is the first person on the medical team with whom the athlete interacts. In today's litigious society, it is important for athletic trainers to be aware of athletes' satisfaction with the quality of service they provide. This is not a new concept. Patient satisfaction and quality service have been topics of interest in the medical profession.^{1,2} As a result of research outcomes, private clinics and hospitals have been able to develop the competent, coordinated care being requested by their clients.^{1,2}

Athletic trainers would be the first to agree that the relationship and rapport built with an athlete are important to the care and prevention of injuries. Athletic trainers must be able to develop the social support system necessary for all athletes to feel secure with the treatment and service provided.^{3,4} From the time of an injury until the athlete is released to play again, the athletic trainer plays a vital role.⁴⁻⁸ It is during this period that the satisfaction athletes have with their athletic training services and how they are treated in relationship to other athletes within the program come into focus.⁴⁻⁸ Do athletes respect their athletic trainers and the health care services they provide? Do athletes perceive their athletic trainers as having the skills necessary to deal with their specific health care needs? Do both female and male athletes express the same level of satisfaction with the care they receive? Are athletes in low-profile sports as satisfied with their medical care as those in high-profile sports?

Our purpose was to evaluate the satisfaction collegiate student-athletes have with their athletic trainers and the services they provide. We specifically looked at differences in satisfaction levels between male and female athletes and athletes in high- and low-profile sports who compete at the National Collegiate Athletic Association Division I and II levels. We also wanted to evaluate whether sex, level of competition, or sport profile were predictors of the score on the questionnaire. The results of this study will provide athletic trainers with an understanding of the satisfaction athletes at the collegiate level have with them and the services they provide. More importantly, the results provide insight into the differences in satisfaction among collegiate athletes at various levels of participation.

METHODS

Subjects

A systematic, stratified, random sample was conducted to select subjects for this project. It was important to acquire a sample that represented programs in Division I and II levels from different regions in the United States (Table 1). The 4 time zones were used to divide the United States into regions. We then randomly selected programs located in each of the 4 time zones. Five Division I and 5 Division II institutions with-

Table 1. Process for Determining Sample

	US Time Zones				
NCAA Division*	East	Central	Mountain	Pacific	n
Random Selection of Schools (n = 20)					
I	3	3	3	2	
II	2	2	3	2	
Systematic Random Selection of Teams and Schools					
Sport					
Baseball	6	8	2	1	17
Basketball	17	14	18	12	61
Cross-country	4	8	5	4	21
Soccer	14	2	5	5	26
Track	6	11	12	11	40
Volleyball	9	9	10	8	36
Wrestling	3	2	3	2	10
Softball	4	2	6	3	15
Football	6	7	10	1	24
Golf	2	9	1	2	14
Tennis	11	8	8	7	34
Rodeo	0	0	1	0	1
Gymnastics	0	0	4	0	4
Lacrosse	3	0	0	0	3
Hockey	3	0	0	0	3
Swimming	5	0	0	0	5
Rowing	2	3	0	0	5
Equestrian	0	2	0	0	2
No sport reported	3	1	0	0	4
Participants (n = 325)					
Participants	n = 98	n = 86	n = 85	n = 56	

* NCAA indicates National Collegiate Athletic Association.

in each of the 4 time zones were randomly chosen to participate. A letter was sent to the head athletic trainer at each institution to determine if he or she was interested in participating. Only those programs whose athletic trainers agreed to participate were included in the study. The head athletic trainer was asked to identify 1 person on the athletic training staff who would act as the site administrator and administer the questionnaire to the athletes. A letter was sent and a follow-up phone call made to that person to explain the process. Site administrators were paid \$50 for their efforts upon completion of the project.

Rosters containing members of all of the athletic teams for each participating institution were obtained from the institution's athletic Web site or from the sports information director. A systematic, stratified, random sample of 2 people per team was chosen. We established 2 numbers to be used on each alphabetically correct roster. The athletes who represented the selected numbers on each of the rosters were asked to participate. For example, the 4th and 11th people on each alphabetically correct roster for teams that had 15 or fewer athletes were chosen to participate. For teams of more than 15 athletes, the 8th and 25th people on the alphabetically correct roster were chosen to participate. Participation was voluntary. The site administrator at each institution was sent a list of persons identified to participate in the study. If an athlete declined to participate or was not available, no alternate was chosen. A total of 325 athletes from 20 institutions participated.

An informed consent statement was included in the questionnaire. The university's human subjects review board approved the project and the methods.

Instrumentation

The questionnaire was a modification of a survey used previously by Unruh.³ The questionnaire consisted of 2 sections that were consistent with the method of summated ratings for Likert-scale questionnaires.⁹⁻¹¹ The questionnaire comprised 35 questions designed to collect responses along a Likert-type scale. An additional 15 questions were designed to obtain either a *yes* or *no* response. Questions were developed from subject matter contained in each section of the *Role Delineation Study* conducted by the National Athletic Trainers' Association Board of Certification.¹² Each question was constructed in a manner that best elicited responses reflective of the student-athlete's satisfaction with his or her athletic trainer and the services provided.

Validity for the instrument used in the original study consisted of both face validity and content validity.³ This instrument was a mild variation on the original questionnaire and only varied in wording of questions, so that the questions specifically addressed satisfaction with care. Content validity was established by wording questions to address job responsibilities identified by the *Role Delineation Study*.¹² Face validity was established by having professionals in the field of athletic training review the instrument. We performed a number of reliability tests on this revised version of the instrument. A Cronbach alpha test of reliability "provides the correlation of each item with the total score."¹³ The Cronbach alpha coefficient for this questionnaire was .94. The questionnaire scored a .83 on the split-half test for internal consistency. The split-half test also yielded an intraclass correlation coefficient of a 2-way, mixed-effect model that demonstrated significant reliability ($P < .0000$) for this instrument, with the raters' average being .94. The Spearman-Brown coefficient was .92.

Data Collection

The scoring procedure for measuring and tabulating responses was identical to that used in the previous study by Unruh.³ Likert scales with positive statements were employed for this study. Positively worded statements are preferred to minimize negative bias or influence on interpretation of the statement and in scoring of the questionnaire. Using positive statements is consistent with the literature for the use of Likert-scale measures.^{9,10} In order to quantify the student-athletes' responses, we assigned a point value to each response. *Very satisfied* was given a point value of 5, *moderately satisfied* a point value of 4, *undecided* a point value of 3, *not satisfied* a point value of 2, and *very dissatisfied* a point value of 1. A response written in by the subject as not applicable or a question that was not answered was weighted as if he or she had chosen *undecided*, equaling a score of 3. Applying a score of 3 for an *undecided* score was done in order to not bias the responses in either a positive or negative fashion.^{9,14} A *yes* response was weighted with a score of 2, and a *no* response produced a score of 1. Cumulative scores elicited by completion of the questionnaire were used for analysis.

Data Analysis

Sex of the student-athlete, sport profile (high profile, low profile), athletic division (Division I, II) of the school, and time zone (East, Central, Mountain, Pacific) were the independent variables we used for comparing satisfaction scores. Classification by high and low profile was consistent with that

Table 2. Regression Analysis with Sample Sizes Weighted*

Model	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Regression	107419.73	2	53709.866	8.428	0.000
Residual	2026545.5	318	6372.785		
Total	2133965.2	320			
Unstandardized Coefficients		Standardized Coefficients			
Model	B	Standard Error	Beta	t	P
(Constant)	196.760	4.023		48.908	0.000
Sport profile	-8.309	2.102	-0.225	-3.952	0.000
Sex	4.267	1.940	0.125	2.199	0.000

*Model: Predictor variables = sport profile, sex. Predicted variable = satisfaction scores.

done previously.³ Male athletes who competed in football, basketball, or baseball and women who competed in basketball were classified as participating in a high-profile sport. Athletes in all other sports were classified as participating in a low-profile sport.

Stratified sampling procedures called for weighting each sample to accommodate the differential sample sizes of each stratum. Therefore, the sample cases were weighted to reflect the number of observations represented by a single case. Identifying the number of schools participating and the total number of schools from which the sample was selected from each time zone was necessary in order to establish probability of selection. The inverse of this probability determined the statistical weight for each case.

We used a linear regression model to identify whether sex, sport profile, athletic division, or time zone was a predictor of cumulative score. We also graphed Z residuals to assess normality of data. The residuals had a random distribution, indicating that parametric statistical analyses were appropriate. The final model accepted was used to compute the means for subgroups. This method retains the weights of each case.

RESULTS

The questionnaire for all participants was scored cumulatively. The cumulative score represented a rating for each student-athlete's satisfaction with his or her athletic trainers and the services provided at the institution. The higher a student-athlete or group of student-athletes scored on the questionnaire, the more satisfied the individual or group was with the athletic trainers and the services provided. We ran a series of different regression models in order to best determine the most significant predictor of score by group. The first regression model used sport profile, athletic division, sex, and time zone as predictors of cumulative scores of student-athletes' satisfaction levels. Of these 4 variables, time zone was not a significant predictor of satisfaction ($P = .558$). The second regression modeled the predictive ability of the remaining 3 independent variables: sport profile, athletic division, and sex. This model was discarded because athletic division was not a significant predictor of student-athletes' satisfaction ($P = .242$). The third regression model, employing only the remaining 2 predictor variables of sport profile and sex, was determined to be statistically significant ($P = .000$) (Table 2). The coefficient for sport profile was -8.309 ($P = .029$), indicating that athletes in low-profile sports demonstrated lower satisfaction scores than athletes in high-profile sports, regardless of sex. Thus, sport profile was a significant predictor of

Table 3. Descriptive Data of Subject Groups and Mean Scores Based on Accepted Regression Model

Subjects	n	Percentage of Subjects	Mean Score
Male	149	45	201.03
Female	176	55	205.30
Athletes in high-profile sports	102	33*	188.45
Athletes in low-profile sports	219	67*	180.14

*Represents general values of percentage of participation. There were 2 cases in which low numbers of participants from sports not otherwise represented had to be excluded in some data measurements. Excluding these subjects did not affect statistical outcomes.

Table 4. Delineation and n of Subgroups and Each Group's Mean Score Based on Accepted Regression Model

Subgroup and Delineation	n	Percentage of Subjects	Mean Score
1 Male, high-profile sport	72	22	192.72
2 Male, low-profile sport	76	23	184.41
3 Female, high-profile sport	30	9	196.99
4 Female, low-profile sport	143	44	188.68

satisfaction score. The model also indicated the coefficient for sex was 4.267 ($P = .029$), suggesting that female athletes demonstrated higher satisfaction scores than male athletes, regardless of sport profile. Thus, sport profile and sex were significant predictors of satisfaction score (Tables 3, 4).

DISCUSSION

This research project replicates a previous study conducted in the southeast region of the United States and adds to the accumulating findings in the area of student-athlete satisfaction with the care provided by their athletic trainers. The previous regional study was directed at the perceptions student-athletes had of their athletic trainers.³ The instrument we used was a variation on the instrument used in the regional study.³ Our instrument was tooled to better assess student-athlete satisfaction with care.

In a previous study,³ men and women in low-profile sports, especially at Division II institutions, demonstrated significantly lower cumulative mean scores. Our findings were similar in that men and women in low-profile sports demonstrated lower levels of satisfaction. The scores for men in low-profile sports were the lowest of our 4 subgroups. Women in high-profile sports showed the highest satisfaction scores. Men in

high-profile sports and women in low-profile sports fell between the other 2 subgroups, with the men in low-profile sports scoring the lowest (see Table 4). Unlike the previous study,³ we found that level of competition did not have a significant effect on satisfaction scores. This inability of level to discriminate satisfaction scores could be because our study was done with student-athletes from across the nation, and regional differences may not have influenced the outcome. Also, the instrument used in this study was tooled to directly measure satisfaction rather than perception of care.

As with the previous study,³ athletes in high-profile sports demonstrated a higher level of satisfaction than did athletes in low-profile sports. This suggests athletes perceive that athletic trainers generally offer greater attention to athletes in high-profile sports than they do to athletes in low-profile sports. Staffing issues may influence the satisfaction of these athletes. Athletic training programs may not be staffed well enough to provide thorough or comprehensive coverage to all teams. Perhaps having more staff available to athletes in low-profile sports could enhance satisfaction outcomes.

Increasing satisfaction with care is important on a number of fronts. Rehabilitation outcomes are greatly enhanced by high satisfaction among patients.^{4–8} Also, third-party reimbursement depends on quality care, which is in keeping with outcomes-based rehabilitation. Equal treatment of athletes is a professional responsibility to which all athletic training professionals should aspire and is identified in the National Athletic Trainers' Association *Code of Ethics*.¹⁵ Treating all athletes with dignity and respect, providing emotional support, and considering each athlete's individual perspective, no matter the sport, are just a few of the strategies to increase satisfaction without increasing staff, supplies, or equipment. Addressing these areas of care delivery is in keeping with what other health care professionals have done in an effort to increase patient satisfaction.¹ Practicing athletic trainers might improve on their athletes' satisfaction with care by simply enhancing their own listening and communication skills. Athletes who perceive their athletic trainers as willing to listen to them and interested in their concerns may demonstrate a higher level of satisfaction, which can only improve the working relationship between the athletes and the athletic trainers.

High student-athlete satisfaction may reflect the quality of health care provided by athletic trainers. Our results suggest that the collegiate student-athletes who participated have a high level of satisfaction with the care provided by their athletic trainers. The findings also demonstrate, however, that sat-

isfaction is not uniform and that athletic training professionals need to continue to work to improve delivery of health care across the athlete population.

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